Author's response to reviews

Title: Cohort differences in disease and disability in the young-old: findings from the MRC Cognitive Function and Ageing Study (MRC-CFAS)

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Author's response to reviews: see over
Re: Manuscript ID 8474591981268453 Cohort differences in disease and disability in the young-old: findings from the MRC Cognitive Function and Ageing Study (MRC-CFAS)

Thank you for the comments of the reviewers to the above paper that have helped strengthen the paper. Below we detail how we have addressed each of the comments.

Reviewer 1
Major Compulsory Revisions
1. Page 4, Disease, Paragraph 2. For those with moderate or severe cognitive impairment, how valid are their answers in the interview?
   Those with moderate or severe cognitive impairment were likely to have a proxy present during interview. We have already shown that reporting by informants when compared with non-demented individuals is good for 'solid' conditions like stroke, etc. We have added this to the Discussion page 7-8.
2. Page 5, Results: How were the age and gender distribution among the non-responders?
   There was no difference in the age and gender distribution between the responders and non-responders for either cohort – this has been added at the end of the first paragraph of the Results.
3. Table 1: How many were living in institution?
   This has been added to Table 1.
4. The second table 2 (= table 3?): The results in the second part of the table (Sociodemographics) how are they to be interpreted? They are mentioned neither in the results nor in the discussion, and the heading of the table does not explain enough.
   The Table has been correctly numbered as Table 3 and the results discussed in the final paragraph of the Results (page 6).

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1. Page 2, Abstract, last sentence: The sentence is not complete
   Now completed and revised as per Reviewer 2.
2. Page 6, Survival: Were there a significant difference in survival if only age and gender were adjusted for?
   There was no difference in survival with only age and gender (hazard ratio 0.85, 95% CI 0.59 to 1.23). This has been added in the section on Survival on page 6.
3. Page 7, second paragraph, line 2-3, ref 32: The study is not from Finland, it is from Sweden! (And there were fewer men in the later born cohorts with no diseases in that study.)
We apologise to the reviewer for this error and we have amended the sentence.

4. Tables: There are two tables 2 and no table 3.
Second Table 2 now renumbered.

Discretionary Revisions (which the author can choose to ignore)
1. Table 2: The p-values seems superficial to me, since the CI are presented
We have retained both
2. Pages 4 and 5, Functional limitation and Disability: Mobility limitation is described under both headings, and I have difficulty to understand the difference between the two.
This was a mistake and the second reference under disability has been removed.
3. Page 5: Statistical methods and page 6. Disease, Functioning and disability: It is stated that the models for disease were adjusted for age and gender. I assume that this is also true for disability and functional limitation (as stated in table 2).
Yes it is and we have changed the order of the sentences to make this clearer.
4. Were there any questions about symptoms? With more diseases diagnosed, their might be a reduction in symptoms (compare ref 32, in which there were more participants in later born cohorts having diseases, but fewer participants with many symptoms).
No the study did not include any questions about symptoms.

Reviewer 2
Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
The authors acknowledge the limited power of the study for some outcomes but the discussion should be written more clearly to explain the alternative explanations for observed increase in ill-health and how the data supports them – plus the limits of the data in addressing these alternatives. This is at present addressed mainly in the last half of the last paragraph. For example if the increase in ill-health is due to increased survival to age of 65 years, one might expect an increase in history of CHD / stroke which the study may be unable to detect. The disparity between increase in reported disease but non-significant increases in disability should be discussed in this context.
The Discussion has now been reordered and rewritten to more clearly show the alternative explanations for the findings and how other data might support these.

The conclusion in the abstract should be reworded as at present the last sentence appears incomplete. It would reflect the data better if it referred to an increase in reported ill-health which may reflect changes in diagnosis or reporting.
Revised – see above under Reviewer 1.

The use of term cohort in the title and abstract background, is slightly confusing when
• most results are from cross-sectional data
• this study design cannot separate cohort differences from period effects (i.e., changes over time that affect all age—groups)

We feel this is in keeping with other papers we have referenced, as we are comparing different birth cohorts though we accept we cannot separate period and cohort effects with our data (though neither can most others!)

Separating the effect of diagnostic trends would be easier if the methods stated which conditions (other than stroke) referred to doctor-diagnosis and which conditions may have been self—diagnosed.

We have added information about the Rose Angina scale which was used for angina and intermittent claudication. Apart from stroke all other conditions were self-report.

No details are given of how deaths were identified/validated or the completeness of this follow-up. This was an omission and has been added in the Methods section (page 4).

Table 1 does not give significance levels of the differences between cohorts. The focus of this paper is on functional impairment and health. Table 1 is presented to provide a background for the differences found in functional impairment and health. We did not carry out statistical tests, as these were not our main interest and we wished to avoid the problems associated with multiple statistical testing especially since our study populations are not large.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Review of other studies’ results in the Discussion is hard to follow in some places e.g. para 2 p7 where the effect of increased mortality on reported ill-health is unclear. The Discussion has now been rewritten.

Table 1 & 2 would be clearer with total N at top of the columns. This has been added but as the first line in the Table.

Discretionary Revisions (which the author can choose to ignore)

Is year of first diagnosis available? This may give some insight into period effects. Not available.

References for the models of morbidity (e.g., Fries, Gruenberg) would be helpful for the interested but nonexpert reader. These have been added.

Leaving armed forces as a separate social class group in Table 3 may result in some very small cells in the regression analyses. We have repeated the analyses omitting social class and also with social class recoded as I&II v rest. In neither case was the effect size for cohort altered significantly.